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BUREAU OF ELECTRONIC & APPLIANCE REPAIR,
HOME FURNISHINGS & THERMAL INSULATION
4244 SOUTH MARKET COURT, SUITE D
SACRAMENTO, CA 95834-1243

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Requirements, Test Procedure and Apparatus for Testing the Smolder Resistance of Upholstered Furniture

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REQUIREMENTS, TEST PROCEDURE AND APPARATUS FOR TESTING THE SMOLDER RESISTANCE OF UPHOLSTERED FURNITURE

PURPOSE

The intent of this standard is to produce upholstered furniture which is safer from the hazards associated with smoldering ignition. This standard provides three testing methods for smolder resistance of upholstered furniture.

Test Method 1 – Smolder Resistance Test of Upholstery Cover Fabric

1.1 Scope - This test method measures the tendency of upholstery cover fabrics to smolder and contribute to fire propagation, when subjected to a smoldering ignition source.

1.2 Summary of Test Method – In this test method small scale mock-ups consisting of standard polyurethane foam substrates and upholstery cover fabrics are subjected to ignition from a standard smoldering test cigarette by placing the lit cigarette at the mock-up crevice and covering it with a piece of standard cotton sheeting fabric. Continued and sustained smoldering in any direction indicates the sample is a smoldering hazard.

1.3 Significance and Use – Upholstery cover fabrics may constitute a smoldering hazard in furniture unless inherently smolder-resistant or used along with smoldering resistant substrates. If smoldering is allowed to continue indefinitely, it may progress to open-flaming, causing a more immediate fire hazard. This test assesses the tendency of these materials to initiate and sustain smoldering, leading to an open-flame fire.

1.4 Test Facility Hazards - The exhaust system and hazards are described in Annex A.

1.5 Test Materials

- Ignition Source – The cigarette ignition source is described in Annex B.
- Standard Sheeting Material – The standard sheeting material is described in Annex B.
- The Standard Polyurethane Foam (SPUF) – The standard polyurethane foam is described in Annex B.
- Specimen Holder – The specimen holder is described in Annex B.

1.6 Conditioning - Condition test specimens and cigarettes prior to the test for a minimum of 24 hours at 21° ± 3 °C (70° ± 5 °F) and less than 55% RH. If conditions in the test area are not the same as in the conditioning area, tests should begin within 10 minutes of removal of samples from conditioning area.

1.7 Test Specimens

(1) Specimen requirements.

(a) From the upholstery cover fabric sample to be tested, 3 specimens shall be cut, comprised of vertical panels, each 8.0 × 17.0 in (203 × 432 mm), and horizontal panels, each 203 × 280 mm (8.0 × 11.0 in).

(b) The vertical and horizontal panel cover fabric pieces shall be cut and mounted with the long dimension such that the major areas of fabric variation (such as raised patterns) will lie in the crevice of the mock-up assembly.

(2) Specimen Mounting:

(a) For vertical panels, place the cover fabric on the 203 × 203 × 76 mm (8.0 × 8.0 × 3.0 in) SPUF substrate pieces, taking care that any areas of fabric variation mentioned in paragraph (1)(b) of this Test Method are positioned such that they will form the crevice of the assembled mock-up. Attach the cover fabric to the SPUF substrate pieces with straight pins and pull the cover fabric smooth so that no air gaps exist between the fabric and SPUF substrate. Attach a piece of 127 X 127 mm (5.0 X 5.0 in) cotton sheeting material to the vertical panels with straight pins so that the sheeting material will cover the cigarette when placed in the crevice, approximately 50 mm (2 in) from the top of the 203 mm (8.0 in) dimension.

(b) For horizontal panels, place the cover fabric on the 127 x 203 x 76 mm (5.0 x 8.0 x 3.0 in) SPUF substrate pieces, taking care that any areas of fabric variation mentioned in paragraph (1) (b) of this Test Method are on the edge which will form the crevice of the assembled mock-up. Attach the cover fabric to the SPUF substrate pieces with straight pins and pull the fabric smooth so that no air gaps exist between the fabric and foam substrate.

(c) Place the assembled vertical and horizontal panels in the specimen holder. Press the horizontal panel against the vertical panel to create a straight-line crevice at the intersection. See Figure B-2.

1.8 Test Procedure

1. Place the specimen assembly in the test enclosure directly on the fiberglass board. If testing multiple specimens simultaneously, place the individual test specimens at least 125 mm (6 inches) apart to avoid heat transfers between specimens.
2. Light cigarettes so that no more than 4 mm (0.16 inch) is burned away and place one cigarette on each mock-up crevice created by the intersection of the vertical and horizontal panels, such that the cigarette contacts both surfaces and is equidistant from the side edges of the test panels.
3. Immediately after placement in the crevice of each mock-up, cover cigarettes with a (127 X 127 mm (5 X 5 in.) piece of cotton sheeting and run one finger over the sheet along the length of the covered cigarette to ensure good cover sheeting-to-cigarette contact and begin timer. If a test is inadvertently interrupted or a cigarette self-extinguishes on lighting, it shall be repeated from the beginning with a new cigarette.
4. Continue testing for 45 minutes. At 45 minutes, if the test specimen mock-up assembly is smoldering, record a failure for that mock-up specimen and extinguish with appropriate means. Proceed to the next specimen. If the mock-up assembly self-extinguishes proceed as follows:
    a. Remove cotton sheeting fabric and remains of upholstery fabric from the substrate pieces.
    b. Carefully remove the SPUF substrate pieces, clean all carbonaceous char from panels with a brush.
    c. Record the mass of the uncharred portions of the SPUF substrate pieces to the nearest 0.1 grams within 15 minutes. Proceed to the next test specimen.

1.9 Pass/Fail Criteria

1. A single mock-up test specimen fails the requirements of this test procedure if any of the following criteria occurs:
    (a) The mock-up specimen continues to smolder after the 45 minute test duration;
    (b) The mock-up specimen transitions to open flaming;
    (c) The SPUF substrate (i.e., sum of both horizontal and vertical pieces) of the mock-up test specimen has more than 10% mass loss.

2. A mock-up sample passes the test if three mock-up specimens pass the test.
3. If more than one specimen fails, the furniture mock-up fails the test.
4. If any one of the three initial specimens fails, repeat the test on additional three specimens. If all three additional specimens pass the test, the mock-up passes the test. If any one of the additional three specimens fails, the furniture mock-up fails the test.

1.10 Test Report

The test report shall include, at a minimum, the following information:

(a) Name and address of test laboratory;
(b) Date of the test(s);
(c) Name of the operator conducting the test;
(d) Complete description of the test specimens;
(e) Applicable smoldering and mass loss data for each SPUF substrate piece from each mock-up including: Mock-up smoldering at 45 minutes (Yes/No);
(f) Pre-test mass;
(g) Post-test mass; and
(h) The percent mass loss of the SPUF substrate of each mock-up assembly.
(i) Statement of overall pass/fail results.
(j) Post-test photograph of all test specimens.

Test Method 2 – Smolder-Resistance Test of Upholstered Furniture Composite Mock-up

2.1 Scope – This test method may be used in lieu of Test Method 1. In addition, upholstery fabrics that fail Test Method 1 of this standard can be used in upholstered furniture only if the furniture composite passes either Test Method 2 or Test Method 3 of this standard. A composite mock-up assembly containing the actual filling materials shall pass this test. This test method measures the tendency of composite mock-up to smolder and contribute to fire propagation, when subjected to a smoldering ignition source. The mock-up consists of a seat and back piece constructed of the actual cover fabric (and any fire barrier material, if present) and the filling materials in the first three inches of layering of the actual furniture item.

2.2 Summary of Test Method – In this test method small scale mock-ups consisting of the actual components of the upholstered seating furniture are subjected to ignition from a standard smoldering test cigarette by placing the lit cigarette at the mock-up crevice and covering it with a piece of standard cotton sheeting fabric. Continued and sustained smoldering in any direction indicates the sample is a smoldering hazard.

2.3 Significance and Use - This test method is designed to measure the tendency of a furniture composite mock-up assembly to initiate and sustain smoldering, leading to an open-flame fire.

2.4 Test Facility and Hazards - The exhaust system and hazards are described in Annex A.

2.5 Test Materials

- Ignition Source – The cigarette ignition source is described in Annex B.
- Standard Sheeting Material – The standard sheeting material is described in Annex B.
- Specimen Holder – The specimen holder is described in Annex B.

2.6 Conditioning – Condition test specimens and cigarettes prior to the test for a minimum of 24 hours at 21° ± 3 °C (70° ± 5 °F and less than 55% RH. If conditions in the test area are not the

same as in the conditioning area, tests should begin within 10 minutes of removal of samples from conditioning area.

Section 1. Products Containing Non-Loose Fill Resilient Filling Materials

1.1 Test Specimens

Construct mock-up composite test specimens according to procedures outlined in Test Method 1 paragraph 1.7 using the upholstery cover fabric, fibrous (or any other) filling materials and the polyurethane foam used in the upholstered seating furniture. Three specimens shall be prepared.

If a furniture product contains more than one type of upholstery fabric, each type of fabric must be tested. Some cushioning assemblies consist of several layers, typically a fiber batting, wadding or pad over various foams. The upholstery fillings shall consist of the actual filling materials present in the first three inches of layering of the seat of the furniture item and the first three inches of layering of the back. Filling types should be placed in the same order in the composite mock-up as they are located in the actual furniture.

1.2 Test Procedure

1. Place the specimen assembly in the test enclosure directly on the fiberglass board. If testing multiple specimens simultaneously, place the individual test specimens at least 125 mm (6 inches) apart to avoid heat transfers between specimens.
2. Light one cigarette so that no more than 4 mm (0.16 in) is burned away, place it on the mock-up crevice created by the intersection of the vertical and horizontal panels of the test specimen such that the cigarette contacts both surfaces and is equidistant from the side edges of the test panels.
3. Immediately after placement in the crevice of the mock-up, cover the cigarette with a (127 X 127 mm (5 X 5 in.) piece of cotton sheeting and run one finger over the sheet along the length of the covered cigarette to ensure good cover sheeting-to-cigarette contact and begin timer. If a test is inadvertently interrupted or cigarette self extinguishes on lighting, it shall be repeated from the beginning with a new cigarette.
4. Continue testing for 45 minutes. At 45 minutes, if the mock-up assembly is smoldering, record a failure for that mock-up specimen and extinguish with appropriate means. Proceed to the next test specimen. If the mock-up assembly self-extinguishes proceed as follows:
    a. Remove the cotton sheeting fabric.
    b. Measure and record char length in all layers of mock-up assembly in all directions around the burned cigarette to the nearest 2.0 mm (0.1 inch) within 15 minutes. Proceed to the next test specimen.

1.3 Pass/Fail Criteria

1. A single mock-up test specimen fails to meet the requirements of this test procedure if any of the following criteria are exceeded:

(a) The mock-up test specimen continues to smolder after the 45 minute test duration;
(b) A char develops more than two inches (50 mm) in any direction, inwards or outwards, from the cigarette measured from its nearest point.
(c) The mock-up test specimen transitions to open flaming.

2. A furniture composite mock-up sample passes the test if three initial mock-up specimens pass the test.
3. If more than one initial specimen fails, the furniture mock-up sample fails the test.
4. If any one of the three initial specimens fails, repeat the test on additional three specimens. If all three additional specimens pass the test, the mock-up sample passes the test. If any one of the additional three specimens fails, the mock-up sample fails the test.

1.4 Test Report

The test report shall contain, at a minimum, the following information:

- Name and address of the test laboratory.
- Date of the test(s).
- Operator conducting the test.
- Complete description of the test material including color.
- Complete description of the presence of any additional materials such as adhesives.
- Complete description of any procedures different from those described in this test method.
- Recorded results of the test as detailed below:
  - The inward and outward char length on all component layers of the mock-up assembly...
  - Evidence and documentation of smoldering combustion leading to open flaming.
- Statement of overall Pass/Fail results.
- Post-test photograph of all test specimens.

Section 2. Products Containing Loose Fill Resilient Filling Materials

2.1 Test Specimens

Use the cover fabric, the ticking (if any) and loose filling materials to construct a 300 × 300 mm (12 × 12 in) (finished size) test cushion. Approximate the packing density of the loose filling material as closely as possible to the density of the filling material in the actual furniture product intended for use. Three specimens shall be prepared. If the existing cushion from the finished product is approximately the size of the test cushion, it can be tested in lieu of constructing a standard-sized test cushion.

2.2 Test Procedure

1. Pre-weigh test cushion on a balance with a tolerance of at least 0.1 grams and record cushion weight to the nearest 0.1 grams. Place the test specimen in the test enclosure directly on the fiberglass board. If testing multiple specimens simultaneously, place the individual test specimens at least 125 mm (6 inches) apart to avoid heat transfers between specimens.
2. Light one cigarette so that no more than 4 mm (0.16 in) is burned away, place it on the surface of the test cushion and equidistant from the side edges of the test cushion.
3. Immediately after placement on the test cushion, cover the cigarette with a (127 X 127 mm (5 X 5 in.) piece of cotton sheeting and run one finger over the sheet along the length of the covered cigarette to ensure good cover sheeting-to-cigarette contact and begin timer. If a test is inadvertently interrupted or cigarette self extinguishes on lighting, it shall be repeated from the beginning with a new cigarette.
4. Continue testing for 45 minutes. At 45 minutes, if the test cushion is smoldering, record a failure for the specimen and extinguish with appropriate means. Proceed to the next test specimen. If the test cushion self-extinguishes proceed as follows:

a. Remove the cotton sheeting fabric.
b. Record the mass of the test cushion to the nearest 0.1 grams within 15 minutes. Proceed to the next test specimen.

2.3 Pass/Fail Criteria

1. A single test specimen fails to meet the requirements of this test procedure if any of the following criteria is exceeded:

(a) The test cushion continues to smolder after the 45 minute test duration;
(b) The test cushion loses more than 1 % of its original weight after self-extinguishing.
(c) The test cushion transitions to open flaming.

2. A furniture test sample passes the test if three initial test cushions specimens pass the test.
3. If more than one initial test specimen fails, the furniture test sample fails the test.
4. If any one of the three initial specimens fails, repeat the test on additional three specimens. If all three additional specimens pass the test, the furniture test sample passes the test. If any one of the additional three specimens fails, the furniture test sample fails the test.

2.4 Test Report

The test report shall contain at a minimum, the following information:

- Name and address of the test laboratory.-
- Date of the test.
- Operator(s) conducting test.
- Complete description of test materials.
- Complete description of any changes in the described standard test method.
- Recorded results of the test as detailed below:
  - The following weight measurements of each cushion test specimen shall be made:
    - Pre-test weight of the test cushion
    - Post-test weight of the test cushion
- Calculated results of the test as detailed below:
  - Calculate percentage weight loss = ((pre-weight (A) – post-weight (B))/pre-weight (A)) x 100%.
- Statement of overall Pass/Fail results.
- Post-test photograph of all test specimens.

Test Method 3 – Smolder-Resistance Test of Finished Article of Upholstered Seating Furniture

3.1 Scope - This test method may be used in lieu of Test Method 1 or Test Method 2. This test method of the standard applies to any finished article of seating furniture ready for sale to the consumer, that contains concealed resilient component materials in the form of foams, battings, pads, and other filling components.

3.2 Summary of Test Method – In this test method the finished article of upholstered seating furniture is subjected to ignition from a standard smoldering test cigarette by placing the lit cigarette in all locations on the furniture and covering it with a piece of standard cotton sheeting fabric. Continued and sustained smoldering in any direction indicates the sample is a smoldering hazard.

3.3 Significance and Use - Upholstered seating furniture constitutes a smoldering hazard unless properly smolder retarded or inherently smolder-resistant. If smoldering is allowed to continue indefinitely, it may progress to open-flaming, causing a more immediate fire hazard. This test assesses the tendency of the finished article of seating furniture to initiate and sustain smoldering, leading to an open flame fire.

3.4 Test Materials

Ignition Source – The cigarette ignition source is described in Annex B.
Standard Sheeting Material – The standard sheeting material is described in Annex B.
Ruler – Standard, 152 mm (6 in) long (for char length measurement).

3.5 Test Facility and Hazards. The exhaust system and hazards are described in Annex A.

3.6 Conditioning - Condition the finished articles and cigarettes prior to the test for a minimum of 24 hours at 21° ± 3 °C (70° ± 5 °F) and less than 55% RH. If conditions in the test area are not the same as in the conditioning area, tests should begin within 10 minutes of removal of samples from conditioning area.

3.7 Test Specimen – The test specimen consists of a finished article of upholstered seating furniture.

3.8 General Test Requirements

1. Test shall be performed in such a manner that each differently dyed area of the furniture fabric is included in the test locations.
2. If a cigarette extinguishes before burning its full length, the test is considered “no test” and must be repeated with a freshly lit cigarette on a different portion of the same type of location on the furniture.
3. Location of the test cigarettes on the furniture shall be no less than 6 inches apart.
4. All exposed horizontal surfaces (including smooth , welted, quilted, decking, tops of arms and backs, tufted, or button locations plus all crevices created by the orientation of seat cushions and furniture side and back panels) shall be tested.
5. Horizontal surfaces include all surfaces which may be vertical in normal use but which are designed to become horizontal surfaces in special use, e.g. recliners, etc.
6. Horizontal surfaces which are not of sufficient size to support a cigarette need not to be tested.

3.9 Test Procedure

1. Place the test specimen in the test area under properly ventilated exhaust hood. If testing multiple specimens simultaneously, place the individual test specimens at least 250 mm (12 inches) apart to avoid heat transfers between specimens.

2. Light one cigarette so that no more than 4 mm (0.16 in) is burned away, place it on the specified location on the furniture.

3. Immediately after placement of the cigarette on the furniture, cover the cigarette with a (127 X 127 mm (5 X 5 in.) piece of cotton sheeting and run one finger over the sheet along the length of the covered cigarette to ensure good cover sheeting-to-cigarette contact and begin

timer. If a test is inadvertently interrupted or cigarette self extinguishes on lighting, it shall be repeated from the beginning with a new cigarette.

4. Each furniture surface shall be tested until either (a) three cigarettes have burned their full length, (b) three cigarettes have extinguished before burning their full length, or (c) one cigarette has resulted in failure as specified by the pass/fail criteria.

5. Smooth Surface and Decking Tests. Three burning cigarettes (well lighted but not burned more than 4mm (0.16 inch) shall be placed directly on a smooth surface location on the test furniture. The cigarettes should burn their full lengths on a smooth surface without burning across a tuft or stitching of a quilted area. However, if this is not possible because of furniture design, then the cigarettes shall be positioned on the furniture in a manner which will allow as much of the butt ends as possible to burn on smooth surfaces.

6. Welt Test. Three burning cigarettes shall be placed in the depression created by the upholstered furniture and the welt parallel to the welt. If there is no depression at the welt, hold the cigarettes in place along the edge and parallel to the edge with straight pins. Three straight pins may be inserted through the edge at a 45° angle such that one pin supports the cigarette at the top, one at the center, and one at the butt. The heads of the pins must be below the upper surface of the cigarette.

7. Quilted Location Test. Three burning cigarettes shall be placed on quilted locations of the test furniture. The cigarettes shall be positioned directly over the thread in the depression created by the quilting process. If the quilt design is such that the cigarettes cannot burn their full lengths over the thread, then the cigarettes shall be positioned in a manner which will allow as much of the butt ends as possible to burn on the thread.

8. Tufted Location Test. Three burning cigarette shall be placed on tufted locations of the test furniture. The cigarettes shall be positioned so that they burn down into the depression caused by the tufts and so that the butt ends of the cigarettes burn out over the buttons or laces used in the tufts.

9. Crevices. If crevices exist, created by the orientation of seat cushions and side or/and back panels, then at least three cigarettes shall be placed at the crevice location so that it burns between the seat cushion and the upholstered panel.

10. Tops of Arms and Backs. Three burning cigarettes shall be placed on tops of arms and tops of backs where present.

3.10 Pass/Fail Criteria

An article of upholstered furniture fails the requirements of this procedure if any of the following conditions occurs:

(a) A char develops more than 50 mm (2 inches) in any direction, inwards or outwards, from the cigarette measured from its nearest point.
(b) The smoldering furniture transitions to open flaming.

3.11 Test Report

The test report shall contain, at a minimum, the following information:

- Name and address of the test laboratory.
- Date of the test(s).

- Operator conducting the test.
- Complete description of the finished article including type, style, physical description, type of frame and type and color of cover fabric.
- Complete description of the presence of any additional materials such as adhesives.
- Complete description of any procedures different from those described in this test method.
- Recorded results of the test as detailed below:
  - The inward and outward char length on all tested surfaces and locations.
  - Evidence and documentation of smoldering combustion leading to open flaming.
- Statement of overall Pass/Fail results.
- Post-test photograph of the test specimen.

Annex A

Test Facility, Exhaust System and Hazards

Test Facility/Exhaust System

The test area shall be a room with a volume greater than 20 m^3 (in order to contain sufficient oxygen for testing) or a smaller area equipped with inlet and extraction systems permitting the necessary flow of air. All smoldering tests shall be conducted under appropriate test hoods and/or test cabinets equipped with variable speed exhaust fans or other means of controlling the exhaust flow rates, such as dampers. Airflow rates shall be between 0.02 m/s and 0.2 m/s, measured in the locality of the test specimen. Position specimen to provide adequate air without disturbing the burning behavior.

Note: These rates of airflow have been shown to provide adequate oxygen without physically disturbing the burning behavior of the ignition source or the specimen**.**

Hazards

- There are potential risks associated with running a fire test. It is essential that suitable precautions be taken, which include the provision of breathing apparatus and proper safety equipment.
- Products of combustion can be irritating and dangerous to test personnel. Test personnel must avoid exposure to smoke and gases produced during testing.
- Suitable means of fire extinguishment shall be at hand. When the termination point of the experiment has been reached, the fire is extinguished, if necessary, with carbon dioxide or water. Presence of a back-up fire extinguisher is recommended. It may be difficult to judge when all combustion in a test specimen has ceased due to potential smoldering or burning deep inside the specimen even after extinguishment. Care should be taken that specimens are disposed of only when completely inert.

Annex B

Test Apparatus and Materials for Smolder Resistance of Cover Fabrics and Filling Materials Used as Components in Upholstered Furniture.

Ignition Source - Non-Filtered Cigarettes, either SRM 1196 (Standard Reference Material), or per Consumer Product Safety Commission's 16 CFR 1632 (Standard for the Flammability of Mattresses and Mattress Pads), conditioned for at least 24 hours.

Table 1. Cigarette Specifications.

Property	Value
Filter	None
Length	83 mm $\pm$ 2 mm
Mass	1.1 g $\pm$ 0.1 g
Packing Density	0.270 g/cm^3 $\pm$ 0.020 g/cm^3
Circumference – for guidance only	Nominally 24.8 mm
Ignition Strength	70 PFLB to 95 PFLB

PFLB = Percentage of Full Length Burn

Standard Polyurethane Foam: The standard polyurethane foam (SPUF) substrate shall have the following specifications: Density: 1.8 lb/ft^3, Indentation Load Deflection (ILD): 25 to 30, Air permeability: Greater than 4.0, ft^3/min, no flame-retardant chemical added in either the manufacturing or post manufacturing processes.

Standard Cotton Sheeting: The specifications of the sheeting material are as follows:
(1) Fiber content: 100% cotton
(2) Color: White
(3) Construction: Plain weave, 19–33 threads per square centimeter (120–210 threads per square inch)
(4) Weight/square yard: 125 ± 28 g/m2 (3.7 ± 0.8 oz/yd^2).
(b) The sheeting shall be laundered and dried once before use with the following laundering procedure. The sheeting material shall be washed and dried one time in accordance with sections 8.2.2 and 8.2.3 of American Association of Textile Chemists and Colorists (AATCC) Test Method 124–2001 ''Appearance of Fabrics after Repeated Home Laundering.'' Washing shall be performed in accordance with sections 8.2.2 and 8.2.3 of AATCC Test Method 124–2001 using wash temperature (V) 60 ± 3 °C (140 ± 5 °F) specified in Table II of that method, and the water level, agitator speed, washing time, spin speed and final spin cycle specified in ''Normal/Cotton Sturdy'' in Table III of the method. A maximum wash load shall be 8 pounds. Drying shall be performed in accordance with section 8.3.1(A) of that test method, Tumble Dry, using the exhaust temperature (66° ± 5 °C; 150° ± 10 °F) and cool down time of 10 minutes specified in the ''Durable Press'' conditions of Table IV of the method.

Mock-up Smoldering Test Specimen Holder: The mock-up specimen holder shall consist of two wooden panels, each nominal 203 x 203 mm (8.0 x 8.0 in) and nominal 19 mm (0.75 in) thickness, joined together at one edge. A moveable horizontal panel support is positioned on a centrally located guide. See Figure E-3.

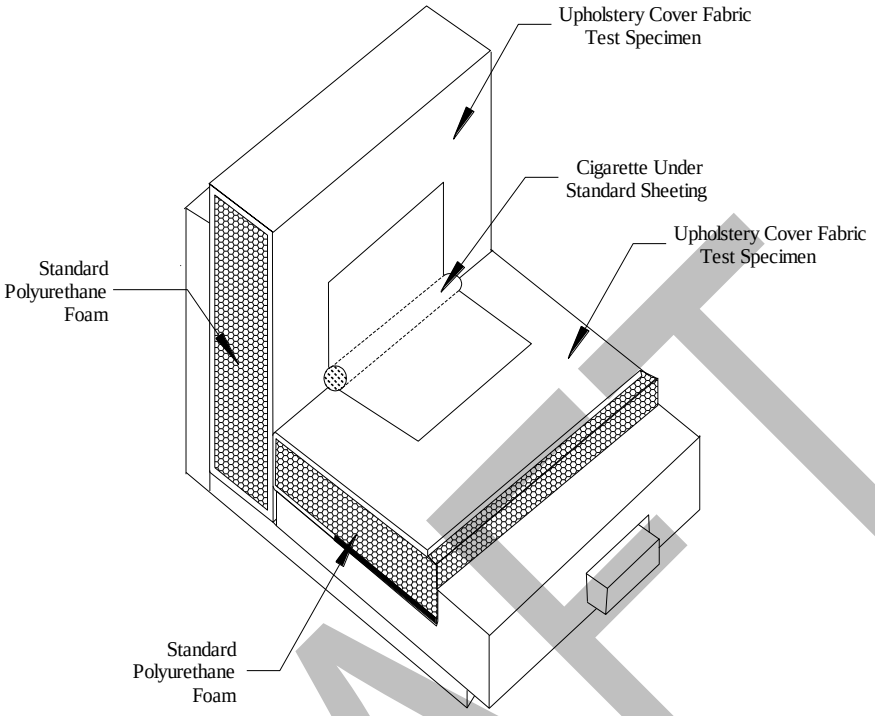

Figure B-1. Mock-up Assembly for Smoldering Ignition Resistance Test of Upholstery Cover Fabrics

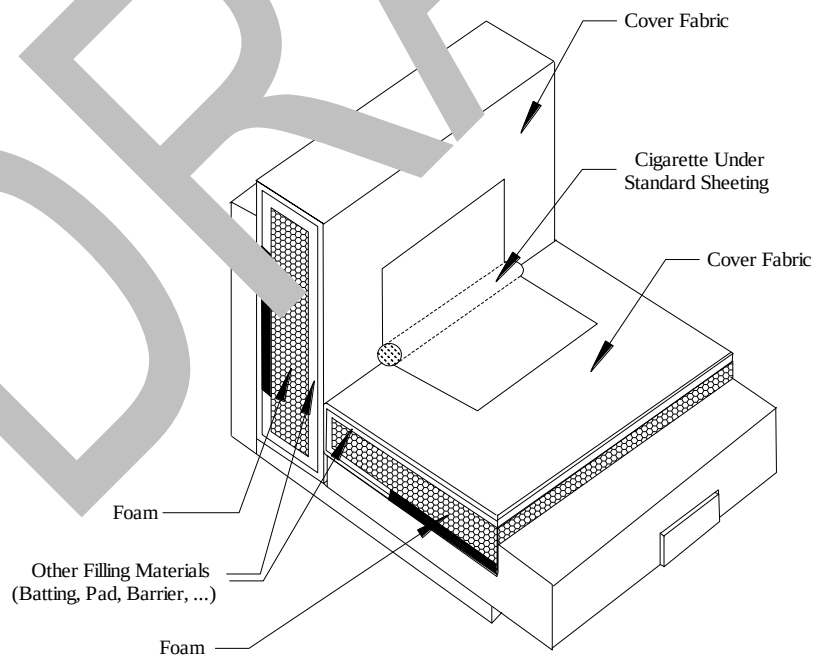

Figure B-2. Mock-up Assembly for Smoldering Ignition Resistance Test of Furniture Composite Mock-up

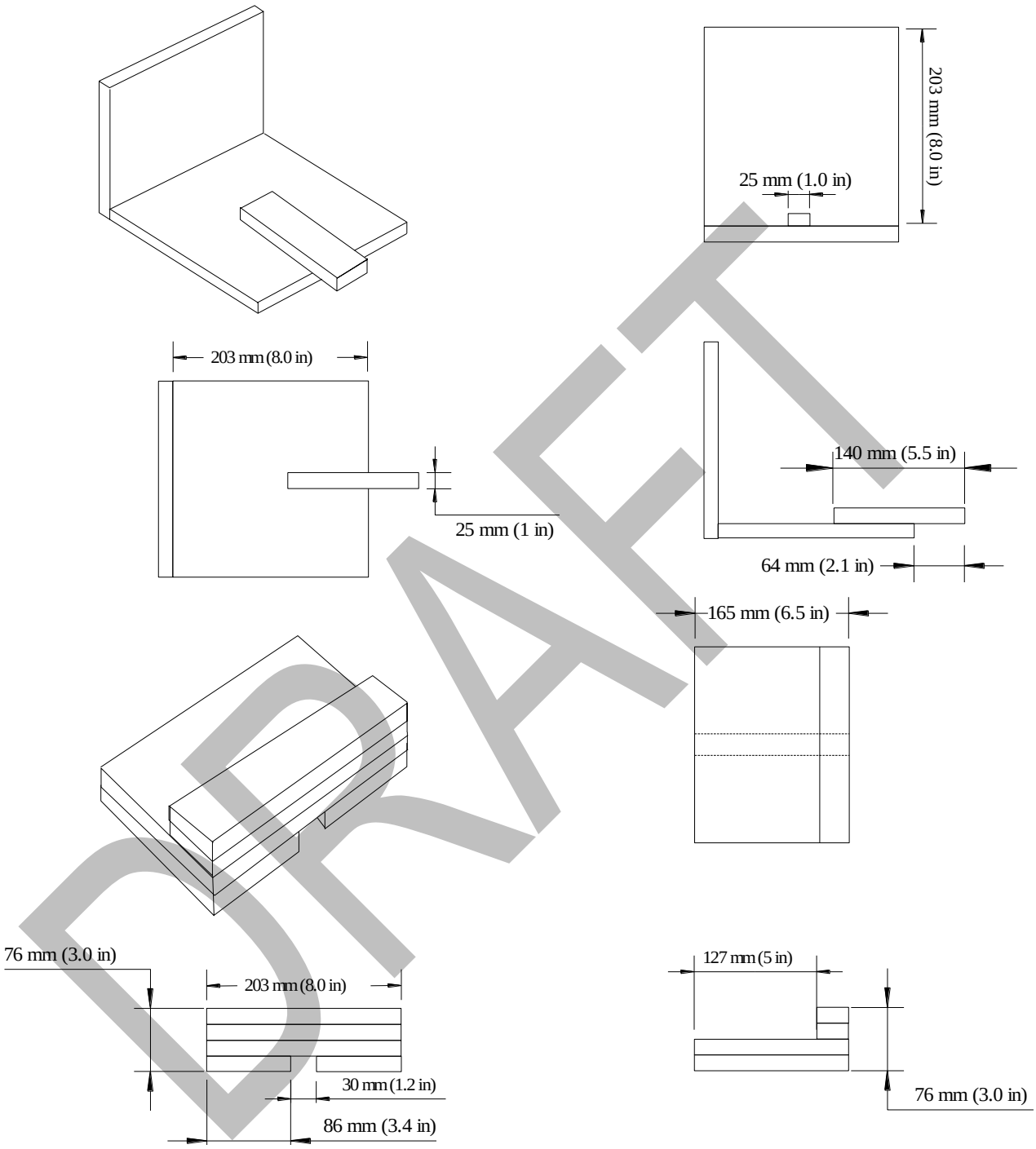

Figure B-3. Specimen Holder for Mock-up Smoldering Ignition Resistance Tests
(Drawings Not to Scale)